

REMARKS

In response to the election of species requirement, Applicant hereby elects the first species of panel 40 in Figure 2, and the first species of starting material, and the first species of indentation as shown in Figure 6. However, it is respectfully submitted that the Examiner's characterization of the second species of starting material is not correct in that it is said to be "solid material (no hollow passages between the major faces)".

The material under discussion is described on page 12, second full paragraph of the specification, where it is said to be "a panel of expanded thermoplastic material 117". The material is shown in Figure 13.

As it is well known, expanded plastic material is "a light, spongy plastic made by introducing pockets of air or gas. Also known as foamed plastic; plastic foam." McGraw Hill *Dictionary Of Scientific and Technical Terms 5th Ed. 1994.*

In addition, Claim 23 has been amended to be generic to both species of starting material, in that it now recites "a plurality of panels of thermoplastic material having dispersed air-filled cavities". Thus, Claim 23 is generic to all species. As it will be shown below, it is allowable over the cited references as well.

Claims 24, 25, 26, 28, 30 and 31 also are generic.

Claim 27 is specific to the first starting material, and Claim 29 is specific to the second panel construction.

The rejection of Claims 23, 25, 26, 28 and 30 as being anticipated by Morgans U.K. Patent 1,354,502 is respectfully traversed.

Morgans shows a heat exchanger made of interleaved plates made of plastic which are formed by one of several different methods. However, the starting materials used are solid sheets of plastic. In contrast, Applicant's materials are thermoplastic panels "having dispersed air-filled cavities". This is significantly different in that Applicant's starting materials are significantly less expensive. Also, they are much easier to form by stamping or a similar process because the material has air-filled cavities which collapse readily under pressure. Moreover, there is little or no extrusion of sprue or other forms of waste thermoplastic material. Therefore, the Morgans reference neither shows nor suggests the very large advantages obtained by the claimed structure.

There also is no disclosure in the Morgans reference of the subject matter of Claims 25 and 26 in which the edges of the panels of Applicant's construction are fused together to form outside walls or to secure the end structures (Claim 26).

Instead, Morgans shows the use of complex and expensive adapters as in Figure 5. This not only adds expense due to the structure and materials of the adapters, but it creates a severe sealing problem; that is, care must be taken to assure that proper seals are formed between the adapter surfaces a and the plastic surfaces at numerous locations. This problem can be and usually is dauntingly difficult and expensive to solve.

The rejection of Claims 23-26, 28, 30 and 31 as anticipated by or obvious over J.P. 4-313693 also is respectfully traversed. The Examiner contends that the "hatching" used on the drawing figures indicates that the material of the boards shown in the drawing are plastic. It is respectfully submitted that the hatching used for plastic in MPEP §608.02 cited by the Examiner is the same for particleboard and plastic. Furthermore, Japanese practices is not known, and the Examiner has not established that the hatching procedure of the U.S. MPEP is used in Japanese drawings.

Without a full translation one cannot tell for certain what the material is. However, it is believed that the usual poor translation comprising the Abstract probably is mistaken in calling the boards "partition boards". Probably what is meant is "particle" boards. In any event, particle board is the most likely material.

Also, it does not matter whether the material shown in the reference is plastic, particle board or metal, because the structure recited in the claims is not present in the reference.

There are none of the "indentations" recited in the claims in any sheet of the Japanese reference. Each sheet is smooth and unindented.

Moreover, the panels are not assembled with the "broad surfaces of said sheets joined together so that said gas flow cavity in each of said selected sheets forms a gas flow passageway with one of said broad surfaces of an adjoining one of said other panels."

The further rejection of Claims 23-26, 28, 30 and 31 as being obvious over JP 4-313693 in view of DT 2,425,261 or Szucs U.S. Patent 4,858,685 also is respectfully traversed.

JP 4-313693 has been distinguished above, both structurally and on the basis of a difference in materials.

The Examiner relies on the other two references to show the use of a thermoplastic material in a heat exchanger. That is not sufficient to render the claims obvious, in view of the above arguments distinguishing the Japanese reference, even if it were to show the use of plastic material. Furthermore, neither of the two secondary references relied on here by the

Examiner discloses the use of a thermoplastic panel having dispersed air-filled cavities, as also described above.

The further rejection of Claim 28 as being obvious over any of the prior art applied to Claim 23 and further in view of JP 57-1731 also is traversed.

This Japanese reference merely discloses a method of manufacturing expanded plastic sheet material. There is no mention in the Abstract of any relationship between this patent and a heat exchanger. Therefore, neither this reference nor any of the references previously applied to Claim 23 suggest a combination of this patent with any of the heat exchanger references.

The use of expanded plastic with its air-filled cavities and the advantages thereof have been amply described above.

The rejection of Claim 29 as obvious over Morgans as applied in Claim 23, and further in view of Stancliffe U.S. Patent 1,662,870 also is traversed.

Stancliffe merely shows a stack of grooved metal plates. The plates are formed by machining, casting, or molding.

The use of metal is even farther afield from the other references which use solid plastic. Therefore, for the reasons

given above, this combination does not show or suggest the features of Claim 29.

The further rejection of Claims 23, 27 and 28 as being anticipated by WO 89/05433 also are respectfully traversed.

The areas denoted "E" in Figure 4 of the reference are not indentations, as contended by the Examiner. Rather, they are complete cut-outs which do not form gas flow passages but instead interrupt gas flow. Therefore, the claims are neither anticipated nor obviated by this combination of references.

The further rejection of Claims 23, 27 and 28 as being unpatentable over the combined teachings of Allen U.S. Patent 4,461,344 and JP 4-313693 also is traversed.

The Japanese reference has been distinguished above structurally and on the basis of materials.

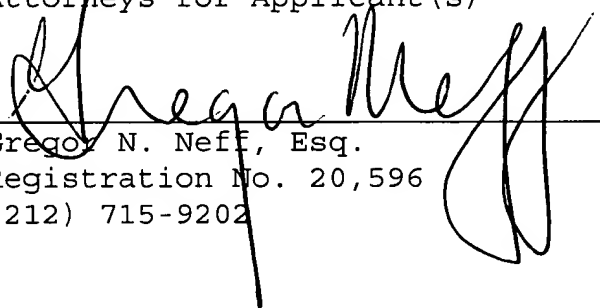
Allen does not show or suggest the invention, either alone or in combination with the Japanese reference or any other reference of record. Allen simply does not disclose or even suggest the formation of flow passages by the simple expedient of forming them between adjacent panels by selectively indenting some of the panels. Instead, Allen uses a plurality of cut pieces which are laboriously assembled and glued onto alternate panels as spacers. Applicant's formation of indentations to create some of the flow passages is a great simplification and

gives significant savings in manufacturing costs. It is unobvious.

In accordance with the foregoing, it is respectfully submitted that the claims are allowable over the cited references. Allowance of the claims is respectfully requested.

Respectfully submitted,

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